

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (currently amended): An electro-mechanical continuously variable transmission comprising:

- ~~a) — a planetary gear set;~~
- ~~b) — an electrical branch having an electrical generator, an electrical motor, and an energy storage unit, with an input coupled to a first element of said planetary gear set, and an output coupled to a main output shaft of said transmission;~~
- ~~c) — a mechanical branch, with an input coupled to a second element of said planetary gear set and an output coupled to said main output shaft;~~
- ~~— d) — a main power input coupled to a third element of said planetary gear set;~~
- ~~— e) — a generator output clutch coupled to an output of said generator and operative to selectively connect/disconnect said output of said generator to/from said main output shaft; and~~
- ~~— f) — a mechanical drive clutch coupled to said output of said mechanical branch and operative to selectively connect/disconnect said output of said mechanical branch to/from said main output shaft.~~

- (a) an input shaft to receive power from an engine;
- (b) an output shaft;
- (c) a generator;

- (d) a planetary gear set coupled to said input shaft, to said output shaft and to an input of said generator;
- (e) a motor coupled to said output shaft by a gear set having a fixed speed ratio;
- (f) an energy storage device coupled to said generator and to said motor and operative to accept power from and supply power to said generator and to said motor;
- (g) a controller coupled to said motor, generator and battery is operative to regulate power flow between said energy storage device and said generator, said energy storage device and said motor and between said generator and said motor;
- (h) a split speed clutch coupled to two elements of said planetary gear set and operative to lock said two elements together and permit direct transfer of all power between said generator and said input shaft;
- (i) a generator lockup brake coupled to said generator and operative to lock said generator from rotating;
- (j) a generator output clutch coupled between said generator and said motor and operative in a locked mode to lock said generator to said motor; and
- (k) a mechanical drive clutch coupled between one element of said planetary gear set and said output and operative to lock together the one element of said planetary gear set to said output allowing said planetary gear set to split power between said generator, said input shaft and said output shaft.

~~Claim 2 (withdrawn): the transmission of claim 1, further including a planetary split speed clutch, operative to lock any two elements of said planetary gear set together, such that said generator output clutch, mechanical drive clutch and planetary split speed clutch are operative when engaged to enable a boost mode which combines the power stored in said energy storage unit with power from said main power input to allow said transmission to operate at torque levels above those available using said main power input alone.~~

~~Claim 2 (withdrawn): The transmission of claim 1, where said energy storage unit consists of a bank of batteries.~~

~~Claim 3 (withdrawn): The transmission of claim 1, where said energy storage unit consists of a bank of capacitors and a bank of batteries.~~

~~Claim 4 (withdrawn): The transmission of claim 1, further including a generator output clutch coupled to said electric generator operative to allow power output from said generator to be used to charge said energy storage unit.~~

~~Claim 5 (withdrawn): The transmission of claim 1, wherein said generator input clutch can also be engaged to allow said electric generator to provide power to start an engine coupled to said main power input.~~

Claim 6 (withdrawn): ~~The transmission of claim 1, further including a lockup brake coupled to said electrical branch, which is operative to lock said electrical branch such that all power to said main output shaft is driven by said mechanical branch.~~

Claim 7 (original): The transmission of claim 1, further including a range splitter coupled to said output shaft to enable two or more separate operating ranges for said transmission.

Claim 8 (original): The transmission of claim 1, further including a regenerative steering system operative to split power between output ends when said main output shaft is used to provide drive force at two ends of said main output shaft.

Claim 9 (original): The transmission of claim 1, further including a regenerative braking system to enable energy from braking to be stored in said energy storage unit.

Claim 10 (currently amended): The transmission of claim 1, wherein said electrical ~~branch is~~ generator and motor are arranged around a shaft parallel to said main output shaft.

Claim 11 (currently amended): The transmission of claim 1, wherein said electrical ~~branch is~~ generator and motor are arranged coaxially around said main output shaft.

Claim 12 (currently amended): The transmission of claim 1, wherein said electrical ~~branch is~~ generator and motor are arranged coaxially around said main output shaft and said main power input is at one end of said main output shaft.

Claim 13 (original): The transmission of claim 1, further including a reverse gear system coupled to said main power input which reverse the output direction of said transmission.

Claim 14 (original): The transmission of claim 1, further including a reverse gear system coupled to said main output shaft operative to reverse the output direction of said transmission.

Claim 15 (new): The transmission of claim 1, wherein said split speed clutch is engaged, allowing said generator to act as a starting motor and send power to said input.